

LONG-TERM DEVELOPMENT OF AGRICULTURE IN MICRO-AREA „DROBOTFOR-POJORÂTA”

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ABSTRACT

Under the complex conditions of the rural area, agriculture must participate, as much as possible to solve all social, economical and ecological problems. Therefore, the development of agriculture should be seen as an integrated, systemic and holistic approach, with a special attention for preservation and maintenance of landscape and non-degraded natural environments.

Key words: crops structure, crops rotation, rational exploitation, ecological products, anti-erosion measures, cultivation specific system.

INTRODUCTION

The rural area has a specific way of representation, characterized by relatively low density of individuals and buildings, preponderance of natural landscapes, agro-forestry economical activity.

The rural concept is the expression of human-time-space ratio. As life style is based on the disposal, utilization and transformation of the resources, being, in this way, under the climatically, edaphically and spatial conditions and constrains. The rural concept begins to adapt the nature to human needs, the degree of human-nature dependence being specific.

Summarizing the rural space functions, one can say that, under EU concept, the agriculture is not only an important economical sector but, first of all, is a life style.

Having in view all the previous theoretical and methodological lines, this paper tries to identify the main problems of some localities from the Drobotfor Area and to emphasize the existent economical and social disparities.

MATERIAL AND METHODS

In order to carry out the benchmark analysis regarding the development of the rural space of communes Stănișești and Motoșeni, from the North-Eastern Region, we gathered statistical data from official and local publications - using questionnaires.

The studied rural space is quite specific, presenting a relatively high population and buildings density natural landscapes are predominant, and the economical activity is dominantly based on agriculture, forestry, pastoral etc.

Characteristics of the study area

The study of the two rural localities (Stănișești and Motoșeni) involves demographic, natural, production, management and knowledge, as well as the quantification of their influence on some specific indicators.

The two tested localities have between 4000 and 5000 inhabitants, being considered, sociologically speaking, as medium size. The population level has decreased in Stănișești (9 villages) and remained constant in Motoșeni (5 villages).

In Stănișești, the active persons work 74.3% in industrial economic activity (of which 2.6% work in towns of whole area) and 89.0% in agriculture.

In Motoșeni, the active persons work 61.3% in economy – industry (of which 25.1% work in towns of whole area). The main activity is the agricultural one, in which 80.6% of population is involved.

About 520 ha of Stănișești locality are occupied by 1400 households (only 20 new houses), with 3-4 family members. In Motoșeni, there are 1928 households (410 new houses), placed on 758 ha, with 1-2 family members.

The percentage of young families in Stănișești, is 89.22%, preponderantly families with 5 children; in Motoșeni, the percentage is lower, only 25.36% and one-two-children families.

Geographical location. The basin (reservoir) Drobotfor is located on Eastern part of Tutova hills.

The relief consists of hills, slopes (Eastern and Western exposure), valleys (North-South orientation) and Dobrotfor river meadow (width ranges between 100 and 900 m).

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Slope exposure – Drobotfor reservoir – and its repercussions

- Erosion → has harmful effects on soils; in case of advanced erosion, even loose rocks are leached.
- The factors which influenced the soil erosion are: rainfall, relief, vegetation, soil, rocks, and soil utilization.
- The process is intensified due to wrong soil utilization: fragmentation; plot orientation on slope direction; soil tillage on slope direction.
- The slope exposure has significant implications on crop structure (Table 1) and associative organization.

Table 1. Crop structure depending on slope

Slope	Drobotfor	Pojorâta	Total		Crops
			ha	ha	
0 - 5	725	135	860	9.57	vegetables, wheat, vetch-oats mixture, maize, pea, sunflower, rape, sugar beet, perennial grasses
5 - 10	715	-	715	7.96	
10 - 15	1156	370	1526	16.9	60% annual crops (of which 1/2 winter ones), 40% perennial crops
15 - 20	2304	38	2342	26.08	40% annual grasses and perennial ones, 20% row crops, 10% fodders, 20% forage legumes
> 20	2835	701	3537	39.4	forestry

Observations! To perform the 4-6 year crop rotations and to introduce new crops, the association of farmers is necessary!

Climate is continental varying between different reliefs. The annual average temperature of area is 9.1°C

The rainfall. The annual rainfall average is 524.5 mm.

The predominant winds are from North and North-West.

Waters. The surface waters are represented by Drobotfor and Pojorâta rivers which have permanent character with no hydro technical works.

Underground waters are characterized by the water depth of at least 10 m no natural water sources exist and hydro techniques works to keep the water sources were performed by habitants, on their own.

Natural resources. The best soil types, belonging to molisols, are present only in Motoșeni (12% of area) and can be used practically for all utilizations and crops (field crops, industrial ones, forage crops, legumes, vineyard, fruit trees). Both localities have *clayey-illuvial soils* (28% in Stănișești and 52% in Motoșeni) with favorable features for agriculture: field crops – wheat, maize, sunflower, sugar beet, barley, alfalfa, clover, fruit trees – apple, cherry, morello cherry, pear, plum, peach, apricot, vineyard, legumes.

Thus, depending on natural fertility, 33% (in Stănișești) and 54% (in Motoșeni) of arable land could be allocated to obtain high yields.

The natural vegetation consists of both grass species, on river meadow (sedge, couch grass, foxtail, mace reed) and hill and forestry ones.

The studied area is characterized by advanced degradation, especially by torrential erosion, encouraged by sandy rocks prevalence, relief and anthropic activities.

Analysis of field utilization in Drobotfor reservoir area according to vegetation structure. On one hand, there is a large area with grasslands and pastures and, on the other hand there are areas occupied by forests (locust trees and oak trees).

The lack and/or fragmentation of forests reveal anthropic activity, predominantly agricultural one, with crops placed especially on low slopes level and into Drobotfor and Pojorâta river meadows.

At the level of Pojorâta sub-reservoir there are areas with grasslands, pastures, vineyards and fruit trees (vineyards and fruit trees are placed near localities).

The described area could be utilized by modern agricultural exploitations (of field,

legumes, forage, mixed, vineyard, fruit trees, zoo-technical) and forestry ones, using soil tillage adequate to slopes and erosion (melioration and preservation works).

RESULTS AND DISCUSSION

The analyzed crop structure – crop and species number as well as livestock, their share into entire activity and ratio between them, as combining elements of the two branches led to the formulation of different scenarios.

A. In *Stănișești*, total area is 8178 ha, the agricultural one represents 76.83%, of which 74.1% is arable land.

The agricultural area is disposed on slope with various degrees: <2%=337 ha; 2.1-5%=106 ha; 5.1-8%=346 ha; 8.1-12%=474 ha; 12.1-18%=1787 ha; 18.1-25%=792 ha; 25.1-35%=901 ha; > 35% the rest of area.

On slopes >20%, anti-erosion exploitations (forests) were performed under management of ANIFRA (19.09 ha). There are proposals for afforestations (hornbeam, beech, ash tree, elm tree)

The structure of area, on utilization categories, is presented in Table 2.

In crop cultivation and livestock there are traditional methods, the tendency being to diversification due to need to ensure food for family and to obtain incomes. In the case of commercial societies, there are differences, the main objective being the profit, and the production structure is targeted to this aim, based on specialization.

The main crops of *Stănișești* agricultural exploitations are cereals (wheat, maize) and oil crops (sunflower) and legumes, potatoes and alfalfa in a low ratio. Because these crops are grown in familial exploitations, their small size did not facilitate obtaining a rigorous statistical database regarding their percentage into area/exploitation. One can also mention the fact that the vegetable products are not commercialized.

The locality territorial organization also includes a fruit tree farm of 100 ha, belonging to the only legal commercial society.

The animal products are better required on market. There is an exploitation focused on

sheep rearing; its dimension is 100 individuals. The destination of the obtained products is local market.

Table 2. Field utilization

Specification	Stănișești, total	Motoșeni – only Sub-reservoir Pojorâta, perimeter IIIA
Agricultural total area, ha, of which:	6230	601,89
- arable	4617	370.18
- grassland	1103	183.03
- pasture	59	32.36
- vineyard	153	16.33
- fruits tree	298	-
Non-agricultural total area, ha, of which:	1878	41.1
- forests	1407	28.33
-waters/water stagnation / reed	13	6.03
- roads	225	-
- courtyards/buildings	155	2.86
- non-productive area	78	3.88
General total, ha	8178	642.99

In the familial exploitations, there is a reduced and different number of animals and poultry; generally, there are cows for milk, sheep, goats, pigs, hens, ducks and geese. For animal feeding, there are 60 ha of natural grasslands managed by Local Council.

As forage crops, 50 ha alfalfa and 50 ha maize for silo are cultivated.

B. *The Motoșeni locality* has 10,450 ha, of which 7.3% inside the locality and the rest agricultural land.

The legal status of farmers is under the law no. 18/1991; the private sector is prevalent.

On the 768 ha inside the locality there are 1928 houses involved into 1598 households, which have 2 person maximum. Economically speaking, the main activity is agriculture, crops and livestock respectively.

The field – Drobotfor reservoir perimeter – is divided into 1900 plots with 535 owners. The main crops are cereals, oil and forage

crops. The yields are low: wheat = 1.7 t/ha; barley = 1.2 t/ha; two-row barley = 1.2 t/ha; maize for grains = 1.4 t/ha; sunflower = 0.9 t/ha; forage crops = 3 t/ha.

Table 3. Agricultural exploitations of the studied area

Specification	Number of agricultural exploitations	
	Stănișești	Motoșeni
Up to 1 ha	1060	60
1.1 – 2 ha	806	1800
2.1 – 5 ha	402	1861
5.1 - 10	207	150
10.1 – 25 ha	124	28
25.1 – 100 ha	46	1
Over 100 ha	1	-

At Stănișești, there are 2646 exploitations and in Motoșeni there are 3900 ones. A large part of people work into familial exploitations, of which 60% are exploitations based on crop cultivation.

C. *In Motoșeni*, to protect soil against erosion, the choice of crops is made:

- very good soil protecting crops (perennial legumes and grasses; protect the soil beginning with the second year of vegetation);
- good soil protecting crops (small grains cereals, perennial legumes and grasses in the first year of vegetation, annual forage crops);
- low protecting crops (row crops: maize, sunflower, potatoes, sugar beet).

The crop is as good for soil protection as its density and duration of exploitation is higher. So, the percentage of row crops and annual ones must decrease into crop rotation and structure with the increase of slope. Thus, for example, on fields with 10% slope about 40% row crops into crop rotation are recommended, while on fields with 25% slope row crops are not recommended.

In the Droboțor reservoir area, the production system in crop cultivation is extensive, based on poly-cultivation and open-field practice. In livestock rearing, the production systems are traditional ones.

D. Having in view the above mentioned issues, the crop management measures against erosion on slope-fields are:

- territorial organization;
- choice of crops;
- choice of cultivation systems for slopes:
 - stripe cultivation;
 - selection of specific crop management measures;
- actions for land improvement:
 - terraces
 - agro-terraces
 - management of plot tillage on rough fields, especially mechanized tillage, consists of choosing machinery, moment of execution, reduced tillage and tillage direction.

Field organization and systematization

- achievement of plot size which allow the application of anti-erosion soil tillage;
- field preparation works, crop management and harvesting should be obligatory performed on level curve direction beginning with 3% slope;
 - on slopes < 16% → one can utilize, with adequate adaptations, the current machinery, especially on relatively uniform slopes. In the case of plots with deep erosion, a previous work it is required;
 - on slopes > 16% → the works should be performed on level curves, with adequate machinery, based on organization and planning of each plot, also labor force organization, fuel consumption, turn - around schemes.

Economical efficiency of production systems related to crop cultivation. The inadequate crop management leads to great difficulties regarding the yield level, with effects on economical results, which cannot ensure a satisfactory production process, as well as a decent life level.

In Droboțor reservoir, the introduction of performance technologies or improvement of the existing ones could have a positive impact on the income for familial exploitations or on profit for commercial societies. The following budgets of expenses and incomes present a comparison of economical efficiency in case of conventional or ecological (organic) technologies (Tables 4 - 7).

Table 4. Budget of incomes and expenses in winter wheat for consumption

No.	Indicators	Conventional technology			Ecological technology		
		kg/ha	lei/kg	lei/ha	kg/ha	lei/kg	lei/ha
1	Average yield	3000	0.80	2400	2200	1.4	3080
2	Variable expenses , of which:	-	-	1990.56	-	-	2570
2.1.	Seed	220	2	440	250	3	750
2.2.	Chemical fertilizers	-	-	298	-	-	-
	- nitrogen	100	2	200	-	-	-
	- phosphorus	70	1.4	98	-	-	-
	- potassium	-	-	-	-	-	-
2.3.	Organic fertilizers (compost from manure)	-	-	-	3000	0.03	900
				0			
2.4.	Pesticides, of which:	-	-	224.56	-	-	-
	- insecticides	-	-	58.86	-	-	-
	- fungicides	-	-	92.4	-	-	-
	- herbicides	-	-	73.3	-	-	-
2.5.	Soil mechanical tillage	-	-	1200	-	-	900
2.6.	Irrigation	-	-	-	-	-	-
2.7.	Expenses with temporary labor	-	-	-	-	-	-
2.8.	Other variable expenses	-	-	28	-	-	20
3	Fixed expenses , of which:	-	-	123	-	-	120
3.1	Expenses with permanent labors	-	-	23	-	-	20
3.2	Other fixed expenses (interests, liquidations)	-	-	100	-	-	100
4.	TOTAL EXPENSES	-	-	2313.56	-	-	2690
5.	Selling price of yield	-	0.77	-	-	1.34	-
6.	TOTAL INCOMES	-	-	2400	-	-	3080
7.	Profit	-	-	86.44	-	-	390
8.	Profit share (%)	-	-	3.7	-	-	14.4

- Using the ecological technology, beside the effect on soil stabilization, the income is higher, more than double vs. conventional technologies.
- In ecological technology the cost of seed is higher, due to higher seed rates and higher organic seed cost.
- This should be more than compensated by higher price obtained for the organic yield, if producers are registered as operators in ecological agriculture, based on Order no. 219/21.03.2007, published in Official Journal no. 238/05.04.2007.

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Table 5. Budget of incomes and expenses in maize for grains

No.	Indicators	Conventional technology			Ecological technology		
		kg/ha	lei/kg	lei/ha	kg/ha	lei/kg	lei/ha
1	Average yield	3000	0.7	2100	2500	1.1	2750
2	Variable expenses , of which:	-	-	1781.3	-	-	2047.5
2.1.	Seed	15	5.5	82.5	15	6.5	97.5
2.2.	Chemical fertilizers	-	-	261.9	-	-	-
	- nitrogen	90	2.0	180	-	-	-
	- phosphorus	63	1.3	81.9	-	-	-
	- potassium	-	-	-	-	-	-
2.3.	Organic fertilizers (compost from manure)	1000	0.003	30	30000	0.003	90
		0					
2.4.	Pesticides, of which:	-	-	166.9	-	-	-
	- insecticides	-	-	23.5	-	-	-
	- fungicides	-	-	-	-	-	-
	- herbicides	-	-	143.4	-	-	-
2.5.	Soil tillage-mechanical	-	-	1240	-	-	1500
2.6.	Irrigation	-	-	-	-	-	-
2.7.	Expenses with temporary labor	-	-	-	-	-	360
2.8.	Other variable expenses	-	-	-	-	-	-
3	Fixed expenses , of which:	-	-	200	-	-	150
3.1	Expenses with permanent labor	-	-	200	-	-	150
3.2	Other fixed expenses (interests, liquidations)	-	-	-	-	-	-
4.	TOTAL EXPENSES	-	-	1981.3	-	-	2197.5

- The variable expenses are about 94% of total ones, with a strong impact on yield cost formation. In the structure of this indicator, the expenses with mechanical works are relevant because the crop is a row one with no herbicide application and with more mechanical work for weed control. Also, because of small plots (specific to slopes) frequent turning of machinery is necessary, with

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5.	Selling price of yield	-	0.66	-	-	0.88	-	negative influence on fuel consumption.
6.	TOTAL INCOMES	-	-	2100	-	-	2750	
7.	Profit	-	-	118.7	-	-	552.5	
8.	Profit share (%)	-	-	5.9	-	-	25.1	

Table 6. Budget of incomes and expenses in alfalfa - first year

No.	Indicators	Conventional technology			Ecological technology		
		kg/ha	lei/kg	lei/ha	kg/ha	lei/kg	lei/ha
1	Average yield	30000	0.06	1800	20000	0.15	3000
2	Variable expenses, of which:	-	-	2542.1	-	-	2280
2.1.	Seed	25	26	650	25	40	1000
2.2.	Chemical fertilizers	-	-	126	-	-	15
	- nitrogen	-	-	-	-	-	-
	- phosphorus	60	1.5	90	10	1.5	15
	- potassium	30	1.2	36	-	-	-
2.3.	Organic fertilizers (compost from manure)	30000	0.003	90	45000	0.003	135
2.4.	Pesticides, of which:	-	-	326.1	-	-	-
	- insecticides	4.8	30.35	145.7	-	-	-
	- fungicides	-	-	-	-	-	-
	- herbicides	0.8	227.2	170.4	-	-	-
			5				
2.5.	Soil tillage-mechanical	-	-	1300	-	-	1100
2.6.	Irrigation	-	-	-	-	-	-
2.7.	Expenses with temporary labor	-	-	-	-	-	-
2.8.	Other variable expenses	-	-	50	-	-	30
3	Fixed expenses, of which:	-	-	25	-	-	50
3.1	Expenses with permanent labor	-	-	25	-	-	50
3.2	Other fixed expenses (interests, liquidations)	-	-	-	-	-	-
4.	TOTAL EXPENSES	-	-	2567.1	-	-	2330
5.	Selling price of yield	-	0.085	-	-	0.11	-
6.	TOTAL INCOMES	-	-	1800	-	-	3000
7.	Profit/losses	-	-	- 767.1	-	-	- 670
8.	Profit share (%)	-	-	-	-	-	-

• The calculation is performed for crop establishment and for the first green mass harvesting.

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Table 7. Budget of incomes and expenses in alfalfa - third and fourth years

No.	Indicators	Conventional technology			Ecological technology		
		kg/ha	lei/kg	lei/ha	kg/ha	lei/kg	lei/ha
1	Annual yield	100000	0.06	6000	50000	0.1	5000
2	Variable expenses, of which:	-	-	2086.1	-	-	1390
2.1.	Seed	-	-	-	5	40	200
2.2.	Chemical fertilizers	-	-	410	-	-	-
	- nitrogen	100	2	200	-	-	-
	- phosphorus	100	1.5	150	-	-	-
	- potassium	50	1.2	60	-	-	-
2.3.	Organic fertilizers (compost from manure)	-	-	-	20000	0.003	60
2.4.	Pesticides, of which:	-	-	326.1	-	-	-
	- insecticides	4.8	30.35	145.7	-	-	-
	- fungicides	-	-	-	-	-	-
	- herbicides	0.8	227.2	170.4	-	-	-
			5				
2.5.	Mechanical tillage	-	-	1300	-	-	1100
2.6.	Irrigation	-	-	-	-	-	-

• The highest variable expenses are registered during the exploitation period with mechanical tillage; in the II-IV years of exploitation these expenses increase about 1.7 times vs. establishment year due to increased number of cuttings and works for exploitation.

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ROMANIAN AGRICULTURAL RESEARCH

2.7.	Expenses with temporary labor	-	-	-	-	-	-	-
2.8.	Other variable expenses	-	-	50	-	-	-	30
3	Fixed expenses, of which:			25				50
3.1	Expenses with permanent labor	-	-	25	-	-	-	50
3.2	Other fixed expenses (interests, liquidations)	-	-	-	-	-	-	-
4.	TOTAL EXPENSES	-	-	2111.1	-	-	-	1440
5.	Selling price of yield	-	0.021	-	-	-	0.024	-
6.	TOTALE INCOMES	-	-	6000	-	-	-	5000
7.	Profit ²	-	-	3998.9	-	-	-	3560
8.	Profit share (%)	-	-	189.4	-	-	-	247.2

² Represent total value, as a result of annual yields.

The structure of using categories was established depending on both necessities of consumption and crop rotation

1. *Motoșeni*. Based on calculation of variable – number of habitants, consumption/habitant and average yield obtained – the following results were obtained:

- cereals – area needed to be cultivated annually = 540 ha, 51% of total area, 14.6% of total arable land;

- sunflower (for vegetable oil) – area needed to be cultivated annually = 229.3 ha, 2.19% of total area, 6.19% of total arable land.

The calculation was done at the level of entire locality. Therefore, the necessary of supply from the main crops adequate for soil erosion control is ensured from an area of 769.3 ha (half of it could be achieved by perimeter of Pojorâta sub-reservoir).

2. *Stănișești*. Following the calculation, based on variables – number of inhabitants, consumption/inhabitant, and average yield obtained – the following results were obtained:

- cereals – area needed to be cultivated annually = 657.7 ha, 8.1% of total area of locality, 10.6% of total land and 14.3% of total arable land;

- sunflower (for vegetable oil) – area needed to be cultivated annually = 271 ha, 3.3% of total area of locality, 4.4% of total land and 5.9% of total arable land.

The necessary supply from the main crops adequate for soil erosion control is ensured from an area of 928.7 ha.

Having in view the achievement of an agro-eco-technique equilibrium to preserve the soil against erosion, as well as adequate utilization of area potential, related with maintenance of traditions in livestock rearing, our studies emphasize that the area useful for crops is about 20% of total.

As a characteristic of studied localities, the food supply is the most important. Thus, the yield obtained/inhabitant is 30.78 kg meat, 466.72 l milk and 652 eggs vs. annual necessary supply of 63.5 kg meat, 240 l milk and 280 eggs.

Consequently, the process of joining agriculture's branches, respectively sheep rearing for meat and rational exploitation of grassland, should be initiated.

Design of some production structure

by branches joining

◆ Starting from:

- in Stănișești and Motoșeni individual house holdings are prevalent, phenomenon which characterizes the entire rural environment;

- in these exploitations, based on activity diversification, crop and animal species and categories are used, but with reduced number;

- main target is own supply, but, on the other hand, there are sources of various feeding;

- forage ratio for animal feeding consist of forages obtained in local grasslands and pastures (2304 ha in Droboțor, respectively 38 ha in Pojorâta, where the slopes are between 15 and 20%), concentrates, but crop by-products too. These are cheap, but recognized for their low nutritive value, leading to low efficiency/animal;

- actions are sporadic, there is no long-term planning (daily gain or during a certain period of time, economical efficiency), generally speaking, economical elements are not applied, leading to waste of forage and labor;

- regarding animal welfare, maintenance, feeding and reproduction, traditional elements are prevalent;

◆ Targets to follow:

- measures to improve the activity and to organize associative forms for livestock rearing, able to deliver constantly products and alive animals to customers.

- increasing of livestock, capital for endowment of rearing system, improvement of feeding and of sanitary-veterinary conditions.

For long-term efficient organization of sheep rearing and exploitation activity, the proposed scenario refers to setting up of a familial association, according to provisions of Law 36/1991, law of agricultural societies and other associative forms in agriculture.

◆ This association will be established in Stănișești, having as aim the sheep rearing for meat and exploitation of natural and cultivated grasslands and pastures on 15-29% slopes.

Sheep rearing and exploitation

The advantages of familial association are:

- existence of enough people who are involved in sheep rearing (of which, one familial exploitation has over 100 sheep) and a significant number of animals to have adequate livestock according to legal provisions;
- high credibility of associated members to create a body involved directly into association management;
- possibilities to ensure forage crops, having in view that there are 2342 ha adequate for grassland and pastures;
- cheap forages;
- enough areas for forage cultivation near the animal farm;
- Sufficient and un-polluted water resources;
- possibilities to ensure summer stabling;
- experience of labor force in this field of activity;
- there is no competition in the area;
- stable customers and high demand (especially in deficit areas).

Strategic targets of familial association

There are economical and social targets.

- Economically:
 - increasing income ;
 - obtainment of profit and long-term agricultural investments (purchasing animals, equipments, technology and infrastructure improvement);
 - organization of an economical exploitation;
 - development of commercial relationships with customers from other areas with high prices;
 - opportunity to achieve direct payments/animal, according to Romanian policy and in accordance with Common Organization in sheep rearing domain;
 - rational utilization of grasslands and pastures and put into value of their productive potential.
- Socially:
 - reduction and/or repartition of responsibilities of sheep owners into association;
 - development of cooperation relationships.

Having in view the above mentioned, as well as the large dimension of association (500 animals), one can diversify, on long-term, the activity, such as meat processing at county level, respectively integrated activities regarding sheep milk and meat production. In this respect, market studies regarding the marketing mixture: policy/product, price, consulting and dissemination, are necessary.

The productive potential of area regarding the sheep rearing is presented in Table 8.

Table 8. Production potential, expressed in kg, of young sheep meat in Drobotfor – Pojorâta area, 15-20% slope, semi-intensive system

Indicators	Drobotfor	Pojorâta
Area with grasslands and pastures	2304	38
Total yield of green mass and hay expressed in NU	1,451,520	23,940
Necessary of NU/kg gain weight - alive	7	7
Weight gain, kg	33	33
Total necessary of UN/sheep	231	231
Livestock (no of sheep)	6,283	103

The implications on association's economy involve the ensuring of its optimization, achievement of some adequate ratio between animal categories, for realization of production and reproduction requirements, replacing animals with problems, rationalization of production costs.

CONCLUSIONS

The inhabitants are agricultural workers and the organization is still at the beginning.

The property and the way of exploitation are the first obligations which could explain the role of exploitations to solve the problems of agriculture starting with rationalization and organization of activity and its area.

The urgent anti-erosion measures on slopes are: area organization, choosing of crops, cultivation specific systems, technological actions, land improvement actions.

The most rational way of field utilization and development directions of agricultural units are defined by establishing the types of crop rotations.

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Having in view the influence of dimension and other factors on yield and economic results, as well as changes related to exploitation system and management, modifications of cultivated areas by association are required.

The scenarios refer to: design of yield structure on technological variants; design of some yield structure by areas joining.

Rent of area, as joining one together with the owned area, means for farmers a possibility to have an activity with benefits, even under risk, and to produce not only for their consumption but for market commercialization.

In conventional technologies, with arable land of 20% from total one, one can obtain ecological products for own consumption and for market commercialization too.

By rational exploitation and by using the entire area of 15-20% slopes as grassland and pasture, one can annually rear over 6000 sheep (meaning about 141,435 kg meat).

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